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CENTRE CIRCULAR

NEWS FROM THE FOOD & PROCESSING DEVELOPMENT DIVISION

OCTOBER 2005

New Animal Feed Processing Assistance Available

While the Food and Processing Division focuses primarily on food products for human consumption, we have had numerous requests in the past for technical assistance with pet food and animal feed processing. It was not always possible to accommodate these requests within a registered food facility like the Food Processing Development Centre. In order to better serve this growing segment of the processing industry, we decided to initiate a feed processing program at the Food Science and Technology Centre in Brooks.

Dr. Xiangfeng Meng has been hired to head up the feed program in Brooks (see related article). A Werner and Pfleiderer twin-screw extruder coupled with a fluidized bed dryer and cooler forms the back bone of the feed processing facility. Ancillary mills, blenders, pre-conditioners, etc. are available on-site. In addition to the extrusion line, other small-scale equipment is available for baked products. A well-equipped food lab provides chemical, physical and some microbiological testing to support product and process development.

Contact Xiangfeng Meng, Feed Scientist, (403-362-1365) or Darcy Driedger, Program Manager (403-362-1339) for more information about animal feed processing services. (Toll free in Alberta at 310-0000.)

Pfleiderer twin screw extruder, Below: Carla Brenner (technologist) and Maintenance Mgr Gord De Jong view finished product

Incubator Update

Construction continues on the Agrivalue Processing Business Incubator. An earlier projection of February 2006 completion has been pushed back to June 2006. The extended construction period is due to a variety of reasons; the completion of eight suites or bays rather than the original six, the availability of trained trades people, and the weather.

Concurrent with the decision to complete the extra two suites, funds made available from the Western Economic Partnership Agreement will allow the incorporation of a continuous oven and a spiral freezer into one of the suites. The decision to include these equipment items was based on their relative immobility and usage pattern in the Food Processing Development Centre. The addition of the oven, freezer and the installation of an existing continuous fryer require modifications to the building design with resulting in delay of building completion. In general, Incubator tenants will provide their own process equipment and remove it at the termination of their lease.

The building envelope is now complete and winter construction can continue in relative comfort.

An information package will be made available to prospective tenants in October 2005. This will include basic information about the structure, the entrance/exit criteria, occupancy charges and samples of the lease agreement for tenants.

NEW TO THE DIVISION

Xiangfeng Meng

Ms. Meng earned her M. Sc. Degree in Animal Nutrition from Northeast Agriculture University, China in 1996, concentrating on interaction between environment and animal nutrition on nutrient metabolism. She then worked as a technical director for Boin Animal Feed Ltd in China for four and half years. Her major responsibility was to transfer scientific knowledge to practical animal production. She accumulated knowledge and experience in animal and aqua nutrition, feed and production which enriched her with practical expertise to develop quality feed products and feeding programs and to solve problems in animal production. As a nutritionist, she also worked closely with feed manufacturing and quality assurance managers in optimizing and troubleshooting feed processing processes, such as grinding, mixing, pelleting and extrusion. Ms. Meng came to Canada in 2001 to pursue her Ph. D. degree at the University of Manitoba, where she worked on a series research projects in the area of utilization of carbohydrase enzymes to improve the nutritive values of wheat, soybean meal, canola meal, peas and full-fat canola and flax seeds for poultry and swine. She recently completed her dissertation defense and joined AAFRD in September. Before her defense, she was a research associate at the University of Manitoba working on improving energy utilization from off-grade canola seeds and flaxseeds by enzyme and processing technology.

Xiangfeng Meng

Contact Meng at 403-362-1365 (toll free at 310-0000) email: xiangfeng.meng@gov.ab.ca

Did You Know?

During the last ten years (1995-2004) Alberta Agri-Food exports shifted from primary commodities towards more value added (processed) products. In 1995, Alberta exports ($4.0 billion) consisted of 31% of value added products and 69% of commodities. By 2004, this ratio reversed to 64% value added products and 36% primary commodities. Alberta's total agri-food exports in 2004 were $4.9 billion.

Upcoming Events

November 2005
Poultry Products Demo

Presenting to The Alberta Chicken Producers and The Alberta Turkey Producers, food scientists and technologists from The Food Processing Development Centre will highlight new technologies for unique products and reveal new markets for poultry goods. For more information contact Marek Gierus at (780) 980-4874. Date to be announced.

February 8 & 9 2006
Emerging Technologies Seminar

Speakers from across industry and academia will present information on a wide range of topics including high pressure processing, vacuum deep frying, hot boning and Pivac packaging, retort processing of flexible pouches, active packaging, liquid/liquid chromatography, drying technologies and the use of ozone as a sanitizer. Watch for seminar brochure to arrive by mail in December.

Are you starting or expanding an agri-value business? Attend the following seminar and get a JUMP start to SUCCESS.

Growing Your Sales and Financing for Success - The Keys to Starting or Expanding Your Business
October 26, 2005, Camrose

Full seminar details and registration options can be found at www.cre.ab.ca

If you have any questions contact Jim Cooper, Commercialization Specialist, Business Commercialization Branch, Agriculture Food & Rural Development - Rite Line (310-0000) 780-679-5176.

The "Getting Out of the Kitchen" educational seminar series is designed to assist businesses associated with the Food Processing Development Centre and the Business Commercialization Branch.

Future topics in the "Getting Out of the Kitchen" series will include:

- Being Investor Ready
- Governance
- Creditors and Debtors
- Liability
- Succession
- Agreements

GETTING OUT OF THE KITCHEN

A Business Seminar Series

Intellectual Property

This morning seminar will look at developing, owning, securing and enforcing intellectual property. It is probably one of your most valuable assets – so come and learn how to fully capitalize on intellectual property.

The discussion will include trade secrets, trademarks, copyright, good will, patents and other intangible assets.

Date:	Monday, November 14, 2005
Time:	9:00 a.m. to 12:00 noon
Location:	Agri-Food Business Centre, Leduc
Cost:	$ 50 (includes G.S.T.)

Being Investor Ready, Going Beyond Friends and Families

This seminar will examine designing a business plan to move beyond your sweat and equity investment thereby offering investors (and yourself) the opportunity to share in the company's success. Learn about the advantages of a share issuance vs. a limited partnership structure.

Date:	Monday, December 5, 2005
Time:	9:00 a.m. to 12:00 noon
Location:	Agri-Food Business Centre, Leduc
Cost:	$ 50 (includes G.S.T.)

For more information contact:

Graham Gilchrist, P.Ag.
Business Competitiveness Management Specialist
Business Management Innovations Branch
Agri-Food Business Centre
6547 Sparrow Drive
Leduc, Alberta T9E 7C7
telephone: (780) 980-4225
e-mail: graham.gilchrist@gov.ab.ca

REGISTRATION FORM

I wish to attend the seminar(s):

- ❑ Intellectual Property
  Monday, November 14, 2005
- ❑ Being Investor Ready, Going Beyond Friends and Families
  Monday, December 5, 2005

If more than one person is attending, please register each person separately.

Registration forms can be faxed to Leduc Community Education Centre at (780) 986-1813

Name: _____

Company Name: _____

Address: _____

Town: _____

Province: _____ Postal Code: _____

E-mail Address: _____

Telephone Number: _____

I am paying by:

- ❑ Visa # _____
- ❑ Mastercard # _____

  Expiry Date of Card: _____

  Name (on card): _____

  Signature: _____
- ❑ Cheque (made payable to Leduc Community Education Centre)

Freedom of Information and Protection of Privacy Act and cancellation policy is governed by the Leduc Community Education Centre (LCEC). For more information, please call LCEC at (780) 986-0371

FIELD LAW

Alberta

Keeping Up With Maintenance

The Food and Processing Development Division currently has over 400 pieces of process equipment in three facilities across Alberta. The Division's maintenance team, working out of the Food Processing Development Centre (FPDC), in Leduc, utilizes a preventative maintenance program to document process equipment maintenance, installations, repairs and modifications. Adhering to the preventative maintenance procedures and expediting repairs helps keep the FPDC running smoothly. The maintenance staff has seen a few changes over the past two years, with some members moving on and new ones coming on board.

Currently, the Division's maintenance team is led by manager Gord De Jong who brings his 24 years of experience as maintenance manager at Lilydale Foods to the FPDC. At Lilydale Gord performed equipment acquisition, plant layout and lead the maintenance team. Gord also brings his skills as millwright to the Division. Gord started with the Centre in January and has been diligently smoothing out the wrinkles in the preventative maintenance program.

Completing the team are mechanical technologists:

Jennifer Moyes, a mechanical engineering technologist. Jenn started with the Division in April 2003. Jenn brings seven years of R&D lab maintenance experience to the Centre and six years of experience working in packaging with Martin Pet Foods in Calgary. She also has a background in agriculture, both nationally and internationally.

John Kwan, who started in June 2004 after 15 years with Levis performing maintenance duties on sewing machines and equipment. John also spent eight years with North West Industries, performing aircraft maintenance.

Reinhard Germann, is the newest addition to the maintenance team. Reinhard spent 19 years with Lilydale where he was responsible for overseeing all the repairs in the maintenance section. Rienhard also brings his talents and capabilities as a journeyman electrician to the team.

Left to Right: Reinhard Gernann, Jennifer Moyes, John Kwan, Gord De Jong.

AESA

Alberta Environmentally Sustainable Agriculture Program

The processing based component of this program provides cost sharing grants to agri-food processors to support projects involving:

- Water and energy conservation
- Waste treatment and reduction
- Environment management

For more information contact:
Jimmy Yao - Tel: (780) 980-4868
Toll free in Alberta by calling 310-0000
E-mail: jimmy.yao@gov.ab.ca
Web: http://www.aesa.ca/ (click 'processing')

Did You Know?

Alberta Ag-Info Centre provides extension on commercial agriculture issues from around the province. The contact centre is an information resource for crops, beef, forage, business management, irrigated and specialty crops and new ventures. For more information contact the Ag-Info Centre at 1-866-882-7677.

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NON-THERMAL TECHNOLOGIES

Jimmy Yao

Nonthermal technologies refer to a group of emerging food preservation processes, such as high pressure processing, ozone treatment, pulsed electric field, ultrasound, plasma and irradiation. Consumers' demand for fresher, minimum processed, safer foods is the main driver for the rapid development of nonthermal technologies.

Even with vast researches on nonthermal technologies, only high pressure processing, ozone treatment and irradiation are at commercial level. Pulsed electric field is considered the next nonthermal technology to be commercialized.

High Pressure Processing (HPP)

High pressure (up to 90,000 psig) can inactivate vegetative cells by damaging cell membranes. So HPP can be used as a cold pasteurization process. The low temperature treatment retains product freshness, flavor and texture. In addition, the process can be carried out after packaging, and therefore post contamination is eliminated.

However, the pressure alone is not very effective in inactivating spores as required to produce low acid, shelf stable products. Currently the research on HPP is concentrating on spore inactivation.

Commercially HPP has been successfully used to pasteurize ready-to-eat meat, fresh juices, salsa and shellfish.

It was reported that HPP is very effective in controlling *Listeria monocytogenes* and *E. coli* in ready-to-eat meats. Homel Foods and Perdue Farms in US and Espuna of Spain are some of the companies to process their ready-to-eat meats with HPP.

Another successful application for HPP is to pasteurize fresh juices and fruit products. The process not only retains the freshness of the product but extends product shelf life beyond two months.

Leahy Orchard, a Quebec company, has been using HPP for their fresh applesauce snacks for some time.

HPP is also successfully used in the oyster industry. It was found that the process not only reduces *Vibrio vulnificus* in oysters to a non-detectable level, but also sucks an oyster from the shell perfectly. The technique also works very well in other shellfish, such as lobsters.

Ozone Treatment

Ozone has GRAS status for drinking water treatment and as food additive. It can also be used in organic processing. In 2001, the Food & Drug Administration of US allowed the use of ozone when used as a gas or dissolved in water as an antimicrobial agent on food, including meat and poultry.

Besides being an effective equipment sanitizer, one of main applications of ozone in food processing is to rinse fresh cut vegetables and fruits, such as apples and tomatoes, with ozonated water. It is claimed that the shelf life of the treated products could be extended by 40% to 70%.

It was also reported that rinsing fresh cut meat with ozonated water reduces *E. coli* significantly and extends shelf life without affecting consumer's acceptance.

Before the ozone treatment, the organic load on the food surface should be as low as possible. Otherwise ozone will be used to oxidize the organic load before disinfecting bacteria.

Irradiation

Food irradiation is an effective intervention step to kill harmful bacteria and extend food shelf life. It is used in many countries for numerous applications from inhibiting sprouting of potatoes and onions to killing pathogen bacteria in red meat and poultry.

In the US, the Food & Drug Administration has approved food irradiation for a variety of products, including red meat and poultry.

In Canada, food irradiation is still limited to potatoes, onions, spices, wheat and wheat flour.

The main obstacle for food irradiation is consumer's negative opinion. In recent years, the acceptance has been improved considerably, but more education is needed.

Pulsed Electric Field

Like HPP, high voltage and pulsed electric field can inactivate vegetative cells by damaging cell membrane, but it is not effective on spores. So the process has potential to be used as a pasteurization process.

During the pulsed electric field process, food flows through a narrow opening to receive pulsed electric treatment. Therefore pulsed electric field processing is limited to liquid or semi-liquid products, such as juices or purees. After the pulsed electric field treatment, the processed food has to be aseptically packaged to prevent post contamination.

Pulsed electric field treatment is not at commercial level yet but is considered the next nonthermal technique that will reach commercial level.